

Conference Abstract

Exploring Size Bias of Natural History Museum Specimens: Comparing Historic Taxidermy Mammals to Contemporary Populations

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Abstract

Specimen sex biases in museum collections of vertebrates have been well-documented (Cooper et al. 2019). This known sex bias equates to body size bias for mammal groups that exhibit high rates of sexual-size dimorphism, such as members of the orders Artiodactyla (e.g., pigs, antelopes, camels, llamas, giraffes), Perissodactyla (horses, rhinoceroses, tapirs), and Carnivora (cat- and dog-like mammals) (Weckerly 1998). Past work on specimen sex bias has focused on research-grade specimens with body size data taken prior to skinning (Meineke and Daru 2021). However little attention has been paid to public-facing specimens housed in natural history collections, such as taxidermy. Taxidermy mounts have been foundational to the modern museum experience. Natural history museums serve as first exposure to the natural world for many people. Charismatic megafauna accurately sculpted, mounted, and displayed provide views into biomes far from what many members of the public ever get to experience. Those who care for taxidermy collections aim to exhibit awe-inspiring, but accurate representations of our natural world. It is important that we foster amazement in visitors, but showing only the largest individuals may bias public perception of what these mammals look like in nature today. In this study, I assessed how taxidermy mammal body sizes differ compared to their species counterparts in contemporary populations.

Taxidermy mammals exhibited to the public may bias impressions of what contemporary wild mammals actually look like, with regard to body size and armament (= anatomical weapon) ornamentation like antlers and horns. Human hunters tend to preferentially take the largest animals of a population, leaving smaller animals to reproduce. Taxidermy mammal collections acquired by museums from trophy hunters may show off extraordinary specimens with exceptionally large bodies. Here, I present a preliminary case study comparing standard body size measurements of taxidermy ungulates (49) and carnivores (14) from the Connecticut State Museum of Natural History ([CSMNH](#)) to measurements of current populations. Most of the 63 CSMNH mounts were hunted in the 1950s–70s by Henry S. Budney, but detailed collection location and date information are sparse; the value of these mounts is realized via education and outreach. No body measurements were taken of these animals prior to mounting so all taxidermy specimens were measured between March–July 2024. These mounts offer good proxies for the sizes of animals as they appeared in life as care was taken by the taxidermists to create anatomically correct and accurate internal body forms. Because I could not use body mass for comparisons of CSMNH specimens with contemporary mammal populations, I measured: (1) head–body length, (2) shoulder height, (3) tail length, and (4) muzzle width. For shoulder mounts, I compared muzzle widths only. Contemporary size data were gathered from authoritative sources (Myhrvold et al. 2015, Nowak 1999, The MammalBase Community 2024).

Overall, I found that body size measurements of CSMNH taxidermy mammals were larger than mean body size measurements from current mammal populations. This size bias in exhibit specimens can provide museums with an opportunity. Impactful exhibits can be designed around this apparent rapid shift in mammal body size caused by humans. Future directions of this work could also involve assessing other public-facing taxidermy exhibits to ascertain if this pattern occurs across collections.

At museums, we strive to inspire awe and wonder in our audiences, and big mammals do a great job of affecting the public positively. At the same time, we need to be aware of the bias we may promote by displaying larger-than-extant-living mammals. Acknowledging that extremely large individuals no longer appear in current populations allows us to highlight how past, current, and future anthropogenic activities affect wild animal populations.

Keywords

authenticity, Mammalia, mount, sexual size dimorphism

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Conflicts of interest

The authors have declared that no competing interests exist.

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